

CLAIMS

1. Extrusion apparatus comprising:

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at least one first tubular passage (17), through which a core material (25) is extrudable, and having a first exit opening (13), wherein in operation the core material (25) is drawn down at a first distance at least 0.5 mm from the outer exit opening (13) within the at least one first tubular passage (17).

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2. Extrusion apparatus according to claim 1 further comprising:

at least one second tubular passage (50), through which a coating material (27) is extrudable, being disposed about the at least one first tubular passage (17) and having an inner opening (52), wherein the inner opening (52) is within the second tubular passage (50).

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3. Extrusion apparatus according to claim 2, wherein the inner opening (52) is substantially annular.

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4. Extrusion apparatus according to one of claims 2 or 3, wherein in operation the coating material (27) is drawn down within the second tubular passages (50).

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5. Extrusion apparatus according to claim 4, wherein the coating material (27) and the core material (25) are drawn down at substantially the same distance from the outer exit opening (13).

6. Extrusion apparatus according to claim 4, wherein the coating material (27) is drawn down at a second distance (52) from the outer exit opening (13) within the second.

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7. Extrusion apparatus according to any one of the above claims wherein a component of the core material (25) or the coating material (27) in an initial zone (60) of the first tubular passage (17) or the second tubular passage (50) forms rod-shaped units that are substantially perpendicular to the internal surface of the first tubular passage (17) or the second tubular passage (50).

8. Extrusion apparatus according to any one of the above claims wherein a component of the core material (25) in a subsequent zone (62) of the first tubular passage (17) or the second tubular passage (50) has rod-shaped units (64) which tumble within the first tubular passage (17) and/or the second tubular passage (50).

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9. Extrusion apparatus according to any one of the above claims further comprising a ridged surface (66) on an interior wall of the first tubular passage (17) and/or the second tubular passage (50).

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10. Extrusion apparatus according to claim 9 wherein the height of the ridges (60) on the ridge-shaped surface coating (66) are less than 10% than the diameter of first tubular passage (17) and/or the second tubular passage (50).

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11. Extrusion apparatus according to one of claim 9 or claim 10 wherein the ridged surface (66) has a surface energy lower than the surface energy of the core material (25).

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12. Extrusion apparatus according to one of claim 9 to 11 wherein a substantial part the drawn down occurs substantially adjacent to a commencement of the ridged surface (66).

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13. Extrusion apparatus according to one any one of the above claims wherein the core material (25) is a liquid crystalline polymer.

14. Extrusion apparatus according to any one of the above claims wherein the coating material (27) is a liquid crystalline material.

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15. Method for forming spun material from a first solution (25) comprising:

a first step of passing the first solution (25) through one or more first tubular passages (17); and

a second step of drawing the first solution (25) down at a distance of at least 0.5 mm from an outer opening (13) of the one or more first tubular passages (17) to form a first spun material (29).

5 16. Method according to claim 15 further comprising a third step of passing a second solution through one or more second tubular passages (50) disposed about the one or more first tubular passages (17) and spinning the second solution (27) about the first spun material (29) to form a composite spun material (31).

10 17. Extrusion apparatus substantially as hereinbefore described with reference to, and/or as illustrated by, Figure 1 or Figure 2 or Figure 3 or Figure 4 or Figure 5 or Figure 6 or Figure 7 or Figure 8, of the accompanying drawings.